SPECIFICATION AMENDMENTS

Page 16, please replace the first paragraph with the following replacement paragraph, marked up to indicate the changes:

The reaction between the diamond and SiO to form SiC coated diamond will generally proceed more rapidly as the process temperature is increased. However at a certain temperature threshold, the diamond can be converted to graphite. In order to establish the limiting conditions in the apparatus in FIG. 1, the following experiments were conducted. Diamond particulate (Synthetic Diamond from Oshmens Corp.) was placed in a crucible and heated to 1550 degrees centigrade and 1600 degrees centigrade for up to 4 hours. X-ray diffraction (XRD) of the heat treated powders indicated the pattern for diamond, with no evidence of graphite. In a separate experiment, diamond powder, which had been reacted with SiO (Table ~~II~~ III, Experiment 4), was heated to 1660 degrees centigrade for 3 hours. The XRD pattern gave no indication of any Conversion of diamond to graphite. However, when the same powder was heated to 1800 degrees centigrade for 8 hours, the XRD pattern on this sample showed a large graphite peak, a broadened diamond peak, and a SiC peak from the SiC conversion reaction. The significant conversion of diamond to graphite after 8 hours at 1800 degrees centrigrade led to a decision to restrict the diamond-SiO reactions to lower time and/or temperature.

Page 17, please replace the first paragraph with the following replacement paragraph, marked up to indicate the changes:

Diamond powder of varying particle size, from 0.5 microns to 120 microns, was reacted at temperatures ranging from 1450 degrees centigrade to 1600 degrees centigrade for times of 1-8 hours. The coated diamond particles were then examined by XRD. ~~The XRD pattern for diamond is shown in FIG. 3, and the pattern for beta-SiC in FIG. 4.~~ The experiments are summarized in Table ~~II~~ III. The XRD spectra of the diamonds showed a change that is attributed to the presence of a small concentration of SiC. ~~FIG. 5 is an example of the XRD of such a coating run, example 13 from Table III, wherein diamond powder with a 100-120 micron particle size was reacted with SiO for 3 hours at 1550 degrees centigrade~~.

Page 18, please replace the first paragraph with the following replacement paragraph, marked up to indicate the changes:

The last column of Table III shows the ratio of the peak height for beta-SiC at 2theta = 35.7 to the peak height for diamond at 2theta = 44.0. While the ratio of peak heights from XRD is not a quantitative procedure for compositional analysis, it allows a rough estimate of relative (but not absolute) SiC to diamond content in the reacted powders. The data in Table ~~II~~ III indicates the variable with the largest impact on SiC formation is the particle size of the diamond. The peak height ratio of SiC to diamond is generally 0.01-0.04 for 100-120 micron diamond particles, 0.03-0.07 for 15-30 micron diamond, and 0.1-0.6 for 0.5 –2 micron diamond. Thus the largest diamond particles appear to have the lowest SiC content. For a given particle size diamond, increasing the temperature and time for the reaction generally results in a higher ratio of SiC peak height to diamond peak height. Given this information, and the supposition of this invention, it would be expected that the highest thermal conductivity for a composite would be obtained using the diamonds which have the lowest ratio of SiC XRD peak height to diamond XRD peak height. One such diamond powder would be from Experiment 4, Table III, with a particle size of 100-120 microns, and reacted for 3 hours at 1550 degrees centigrade with SiO. Conversely, the diamond powder with a particle size of 0.5-2.0 microns could be expected to produce composites with the lowest thermal conductivity.